

Fire Occurrence Reporting System (FORS) Study

Business Needs Analysis

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Prepared for the:

National Fire and Aviation Executive Board



EXECUTIVE SUMMARY

OVERVIEW

Each federal wildland fire management agency uses unique forms and standards for reporting wildland fires. State fire occurrence data collection systems follow different data reporting requirements that vary from state to state. Although much of the information collected by each entity is similar in nature, data standards, values, definitions, and descriptions for each data element often differ. This has resulted in data inaccuracies and inconsistencies that hamper fire planning, information reporting, and data analysis.

The Fire Occurrence Reporting System (FORS) study was designed to identify business needs for the development of a proposed list of critical and common fire occurrence data elements to be used by the interagency fire community. This study was not intended to identify or recommend technical solutions.

Stakeholders representing specific business areas within the wildland fire community were systematically interviewed to document a set of business needs that fulfill their missions and satisfy upward reporting requirements. The FORS study team created a data element inventory of the legacy fire occurrence reporting systems, identified overlaps and gaps in data coverage within these legacy systems, and proposed a list of normalized data elements that are critical for national interagency fire occurrence reporting.

The FORS study team met with the fire occurrence agency Subject Matter Experts (SMEs) to refine and validate the interview findings, establish a set of conclusions and recommendations, and identify critical and common data elements.

FINDINGS

The FORS study business needs analysis yielded findings in four areas: Data Management, Short- and Long-Term Decision Support, and Reporting. Findings are excerpted below:

1. Accurate data with consistent values, data element definitions, and structures across all agencies is required to report credible information to the public and policymakers and to support credible research and analysis. Surrogate data systems (Sit/ICS-209 and others) are being utilized to gain information about current-year fire status for decision support because official fire occurrence systems are not intended to provide information for real-time decision support. Use of multiple systems leads to discrepancies in data over time
2. Access to fire occurrence information needs to be streamlined to allow users to easily access and retrieve fire occurrence data in a timely manner.
3. Data for every fire on lands served by members of the interagency wildland fire community should be accessible and retrievable using standard and reliable methods.
4. The ability to collect and archive computer files of coordinates and other geospatial data depicting the fire perimeters supports a variety of research, planning, and fuels management needs, improves data validity, and facilitates the ease of retrieval for related data, such as vegetation, roads, etc.
5. Current fire occurrence data is used to support fire resource and severity funding decisions by the Geographic Area Coordination Centers (GACCs) and Multi-Agency Coordination (MAC) Groups.
6. Air quality personnel must identify and communicate public health risks from both planned and unplanned wildland fires.
7. A fire containment date is required to comply with emergency stabilization and rehabilitation policy.
8. Fuels management and prevention planning efforts require current fire information to adjust their plan of work.
9. Analysis of trends in fire occurrence supports planning decisions for fire management.

10. Research, predictive services, and fire planning groups (specifically Fire Planning Analysis (FPA)) need to analyze fire occurrence data to better understand historic fire patterns and effective use of fire resources.
11. There is a need to analyze the relationship between fire management strategy and fire behavior.
12. Fire occurrence data is required to perform wildland fire risk assessment.
13. There is a need to understand the effectiveness of fuels management activities.
14. Fire occurrence and its associated costs are analyzed to support fire management reporting and budgeting.
15. There is a need to provide fire occurrence information for briefings to government officials.
16. There is a need to inform the public of current fire activity.
17. Students, researchers, Congressional staff, and other interested parties request current, post-fire, and historic information and data.
18. Fire occurrence data must be reported to meet established legal and conventional requirements and must be defensible.

CONCLUSIONS

Based on interviews and data analysis, the FORS study concludes that:

1. There is consensus across business areas and among the agency fire occurrence SMEs on the following high-level business rules:
 - a. The critical and common data elements are mandatory across all federal agencies, with a subset of data elements for use by the states.
 - b. Fire records need to be accurate, complete, and consistent across all fire occurrence reporting systems.
 - c. Critical and common data elements need to be accessible and retrievable in a timely manner.
 - d. A unique fire identifier is needed so that individual fires can be identified across all agencies.
 - e. Fire occurrence reporting data should be entered only once in the identified system of record.
 - f. There is a strong need for interagency fire occurrence data stewardship for critical and common data elements.
 - g. Geospatial data needs to become a critical and common element as this capability matures within all agencies.
2. There is consensus among agency fire occurrence SMEs on 38 critical and common data elements required for fire occurrence reporting. These data elements are:

Critical and Common Data Elements		
		<i>* Federal Only</i>
<i>Acres burned, final fire size</i>	<i>Fire perimeter geospatial data file *</i>	<i>Injuries</i>
<i>Acres burned by state/owner *</i>	<i>Fire report, reported by *</i>	<i>Other structures lost</i>
<i>Fatalities</i>	<i>Fire report, approved/authorized by *</i>	<i>Other structures threatened</i>
<i>Fire cause, specific *</i>	<i>Fire resource, kind and category *</i>	<i>Point of origin county</i>
<i>Fire cause, general</i>	<i>Fire resource quantity *</i>	<i>Point of origin datum *</i>
<i>Fire containment date and time *</i>	<i>Fire response objectives met *</i>	<i>Point of origin landowner</i>
<i>Fire control date and time *</i>	<i>Fire type *</i>	<i>Point of origin latitude</i>

Critical and Common Data Elements		
		<i>* Federal Only</i>
<i>Fire discovery date and time</i>	<i>Fire type, highest complexity type *</i>	<i>Point of origin longitude</i>
<i>Fire escape indicator *</i>	<i>FireCode *</i>	<i>Point of origin state</i>
<i>Fire identifier, unique</i>	<i>Homes lost</i>	<i>Responsible agency unit identifier *</i>
<i>Fire out date and time *</i>	<i>Initial response date and time *</i>	<i>Weather station ID, primary *</i>
<i>Fire land type *</i>	<i>Homes threatened</i>	<i>WUI indicator *</i>
<i>Fire name *</i>	<i>Initial fire strategy *</i>	

3. There are currently gaps, overlaps, and redundancies for the 38 critical and common data elements identified by the FORS study.
4. Consistent interagency data standards are required for at least the critical and common data elements.
5. Fire occurrence data needs to be a complete and consistent record for every fire across agencies and over time.
6. Fire reporting personnel must have the ability to correct invalid data throughout the reporting process.
7. A diverse audience needs easy access to all critical and common fire occurrence data elements.

RECOMMENDATIONS

Based on the findings and conclusions, the FORS study team and agency fire occurrence SMEs developed the following recommendations:

1. Clarify for all users of fire occurrence data that the legacy fire occurrence reporting systems reviewed in this study are not intended to be sources of real-time fire statistics. Further, if there are subsequent phases of the FORS study, establish sideboards for those phases on the real-time collection and dissemination of fire data.
2. Create a short-term business-centric task group to develop standards for the 38 critical and common data elements identified by the FORS study.
3. Create an ongoing interagency stewardship group to oversee shared fire occurrence business.
4. Reinforce that each agency must adhere to existing fire reporting policies and enhance training programs for fire occurrence reporting personnel.
5. Create a task group to develop a unique interagency fire identifier that can link individual fires across relevant systems.
6. Continue to develop geospatial capabilities within all agencies in relation to the collection, archiving, and retrieval of fire occurrence data.
7. Establish a single, immediate point of access to interagency fire occurrence data; perhaps by relying upon Web-based technology.
8. Document that the states' legacy systems use a subset of the 38 critical and common data elements identified in the FORS study. Request the states consider using the unique fire identifier recommended above. Encourage the states to implement additional critical and common data elements as they feel appropriate.
9. Integrate the results of this FORS study into the National Wildland Fire Enterprise Architecture (NWFEA) project. *[Project Manager Note: This recommendation is unsupported in the study - perhaps because no enterprise architecture stakeholders were included in the analysis.]*
10. Determine the need to address unresolved issues identified during the FORS study.

PROJECT EXECUTION

Commonthread Incorporated and the FORS study team followed a structured analytical process, which consisted of project definition, data discovery, analysis, and report development. The FORS study team interviewed stakeholders during group interview sessions or by telephone. In most instances, the interview sessions focused on two or more related business areas. Information from the interviews was captured in meeting notes and on a data needs spreadsheet, which was later incorporated into a database. The database enabled the complex relationships within the data to be easily viewed and reported, which supported the refinement of the findings by the agency fire occurrence SMEs.